The Impact of Ministers' Profiles on Cabinet Turnover during Presidential Crises

Bastián González-Bustamante
University of Oxford
✉ bastian.gonzalezbustamante@politics.ox.ac.uk

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Introduction

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Ministerial stability during presidential approval crises: The moderating effect of ministers' attributes on dismissals in Brazil and Chile

Bastián González-Bustamante[1,2]

Abstract

This article analyses the effect of ministers' exposure to periods of low presidential approval in Brazil and Chile between 1990 and 2014. Approval is explored with quarterly estimates using a dyad-ratios algorithm and merged into a time-dependent cabinet data set to evaluate individual ministerial terminations (N=424). The empirical strategy combines time-varying exposure Cox regressions with observational data and propensity score and matching to estimate the effect of low approval on ministerial survival and perform a moderation analysis with three profiles associated with presidential strategies: (1) nonpartisan ministers to limit agency loss and moral hazard; (2) economists as ministers to optimise cabinet performance and send positive signals to the electorate; and (3) party leaders as ministers to optimise legislative support. The main findings show that risk increases by 135.1% in periods of low approval. In addition, approximately only one in five nonpartisan ministers is removed compared to party members.

Keywords

Brazil, cabinets, Chile, ministerial turnover, presidential approval, propensity score, survival analysis

Introduction

In May 2010, just a month after the start of Sebastián Piñera's first presidential term, Jaime Mañalich, the recently appointed health minister, was summoned to testify about an allegedly falsified alcohol test performed 7 months earlier on Piñera's brother after a traffic accident. The test took place at a private clinic where Mañalich was then general manager and Piñera was a shareholder. Regardless of public pressure, Mañalich remained

[1]Department of Politics and International Relations & St Hilda's College, University of Oxford, Oxford, UK
[2]Faculty of Administration and Economics, Universidad de Santiago de Chile (USACH), Santiago de Chile, Chile

Corresponding author:
Bastián González-Bustamante, Department of Politics and International Relations, St Hilda's College, University of Oxford, Cowley Place, Oxford OX4 1DY, UK.
Emails: bastian.gonzalezbustamante@politics.ox.ac.uk; bastian.gonzalez.b@usach.cl

A version of this work is already **published in BJPIR** (OnlineFirst), although it does not have the DAG due to length limitations.

Supplementary files with a large number of robustness checks and the full code for R have been released. DOI: 10.25384/SAGE.21346203.v1

Introduction

Our main question is: **How can a minister's attributes prevent his exit from the cabinet during periods of low presidential approval?** Answering this allows us to offer an empirically approachable conceptualisation of ministerial profiles linked to presidential strategies in contexts of approval crises.

We also propose a **specific procedure for correctly estimating effects and bias using the survival approach**, which constitutes a substantial, novel methodological contribution.

Empirical Expectations

Stochastic Events and Low Approval

Events that typically affect cabinet stability include protests, economic crises, media scandals, corruption cases, low approval and natural disasters of different sorts (Camerlo and Pérez-Liñán, 2015; Martínez-Gallardo, 2014). **We opted to focus on periods of low presidential approval**.

A president should have incentives to correct drops in her approval by making cabinet changes and firing inefficient ministers or those whose profile does not tally with strategic presidential decisions, in a similar fashion to what happens with prime ministers in parliamentary systems (Dewan and Dowding, 2005; McAllister, 2003).

- **Low Approval Hypothesis.** Exposure to periods of low presidential approval increases the likelihood that a minister will be removed from the cabinet.

Nonpartisan Ministers, Technocrats and Party Leaders

At this point, we nuance our argument by incorporating the idea that **specific ministers' profiles and attributes can temper or moderate the presidential decision** to dismiss them because specific profiles are linked to identifiable presidential strategies.

The appointment of nonpartisan ministers can be understood as a presidential strategy to control moral hazard problems and the risk of agency loss (Chaisty et al., 2018; Martínez-Gallardo and Schleiter, 2015).

- **Nonpartisan Hypothesis.** Nonpartisan ministers are less likely to be removed from the cabinet during periods of low presidential approval.

Nonpartisan Ministers, Technocrats and Party Leaders

We evaluated technical knowledge as a desirable trait in a presidential cabinet since it can help to manage difficult moments and promote the government agenda. We are specifically interested in the role played by economists, given the abundant literature on the influence of the technocratic phenomenon in Latin America (Centeno and Silva, 1998; Silva, 2009).

The argument is that a more technical cabinet allows presidents to obtain good results in implementing public policies and send signals to the electorate through which to maintain or regain their popularity.

- **Technocracy Hypothesis.** Ministers who are economists are less likely to be removed from the cabinet during periods of low presidential approval.

Nonpartisan Ministers, Technocrats and Party Leaders

Rather than the symbolic dimension of political capital, we highlight the argument that cabinet allocation can be used strategically to negotiate with parties (Schleiter, 2020). In this sense, appointing and protecting ministers who are party leaders can be analogous or complementary to the strategy of forming coalitions to circumvent legislative blockages (Amorim Neto, 2006; Martínez-Gallardo, 2012).

This strategy operates in the opposite way to the limiting of agency loss through the appointment of nonpartisan ministers close to the president: it may increase moral hazard but may also translate into explicit legislative support (Altman, 2000; Amorim Neto, 2006).

- **Political Capital Hypothesis.** Ministers who are party leaders are less likely to be removed from the cabinet during periods of low presidential approval.

Empirical Strategy

Time-Dependent Data Encoding

We merged the data sets of Franz and Codato (2016) and González-Bustamante and Olivares (2023) about ministers in Brazil and Chile between 1990 and 2014.

We thereby obtained a set of 488 observations that we coded as a **time-dependent data set** with quarterly cut-off points for the whole period in order to incorporate presidential approval and macroeconomic data as time-varying covariates.

The base is encoded with cases that have multiple observations according to defined time intervals corresponding to the four quarters of each year. The variance of the **time-varying covariates is coded over the closed interval**, that is, at the end of each quarter.

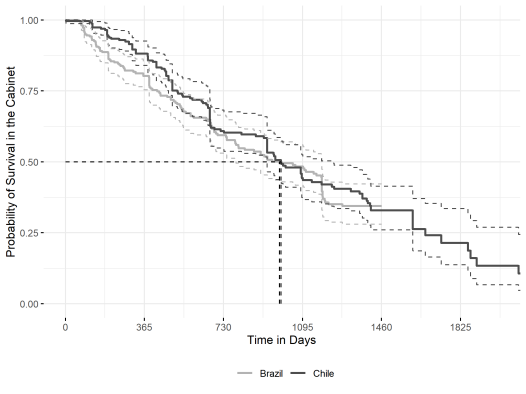
Time-Dependent Data Encoding

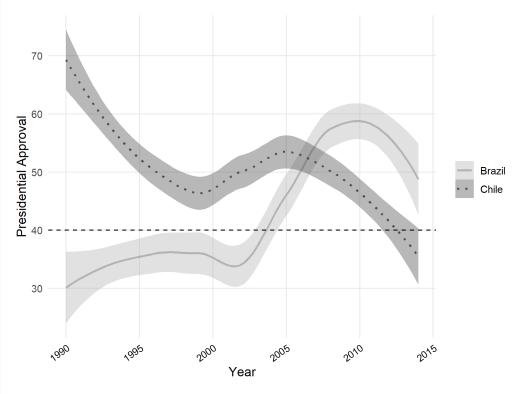
We generated a time event T considering each interval q_j and taking into account the individual ministerial terminations Y_i by constructing intervals where $Z(t) = I(t > Y_i)$.

Then, we merge in each interval $Z(t)$ quarterly smoothed presidential approval with Carlin et al. (2019) data. In addition, we merged World Bank macroeconomic indicators (2020; see also Piburn, 2020) and the legislative ENP with the Gallagher and Mitchell (2005) indicator updated for the period between 1990 and 2014.

This procedure allowed us to obtain a set of **4,245 observations** to which we applied administrative censoring in the final interval when it coincided with the end of the corresponding presidential term.

Survival Estimations for Ministers and Presidential Approval





Time-Varying Exposure Cox Regressions

For econometric estimation with observational data, we used an extension of Cox models with time as the dependent coefficient. This extension involved working with **non-proportional hazards** due to the data set's structure. The equation is similar to that for proportional hazards with a baseline hazard $\lambda_0(t)$ that incorporates the effect of the $Z(t)$ intervals of the multiple *i-th* observations, considering them as clusters.

First, we estimated a baseline model with our quarterly exposure variable to **low presidential approval** D_i (below 40 points).

Time-Varying Exposure Cox Regressions

Our baseline model does not include any covariates or specifications. We then extended the equation incorporating moderating covariates $X_{j[i]}$, controlling for government and country **fixed effects**, including a vector of controls C_k with *k-th* **potential confounders** (these are subsequently used to estimate propensity scores).

$$\lambda(t_i) = \lambda_0(t_i)\, exp\,[\beta_t Z_i(t) + \beta D_i + \sum_{j=1}^{J} \gamma_j X_{j[i]} + \zeta\, gov_i + \eta\, country_i + \sum_{k=1}^{K} \vartheta_k C_{k[i]} + \varepsilon_i] \quad (1)$$

Time-Varying Exposure Cox Regressions

Next, we incorporated the **interaction effect** between low presidential approval D_i and our covariates $X_{j[i]}$, denoting *j-th* type covariates that are incorporated in separate models with the term $\delta_j D_i \times X_{j[i]}$.

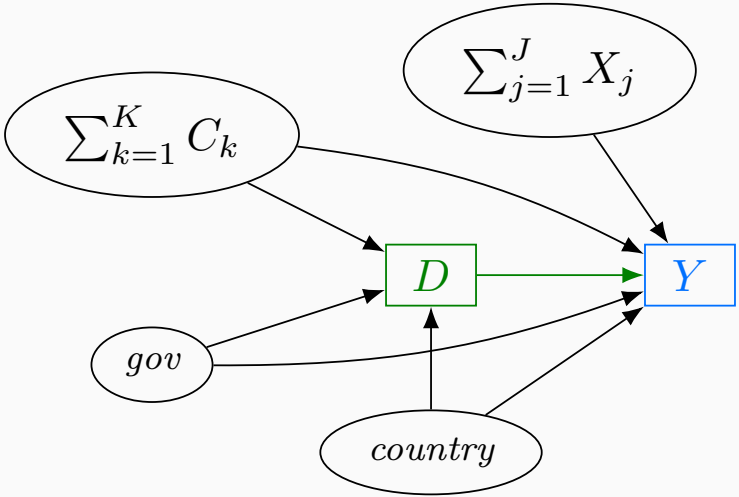
In practice, our empirical strategy involved testing three binary **moderating effects of ministers' profiles** and attributes: (i) nonpartisan ministers; (ii) economists; and (iii) political party leaders.

Time-Varying Exposure Cox Regressions

The vector C_k ($K = 9$) considers the following variables: **legislative ENP**, a binary variable reflecting when consecutive **presidential re-election** is allowed, **economic growth**, **inflation**, and five binary variables measuring the quadratic patterns of the **cyclical model of presidential approval** (initial honeymoon, a gradual deterioration and a slight recovery towards the end of the term, see Carlin et al., 2018; Stimson, 1976).

These nine covariates are considered **potential confounders for the PS estimation** as they could affect both presidential approval and the decision to fire ministers.

Nonparametric Representation of Causal Relationships

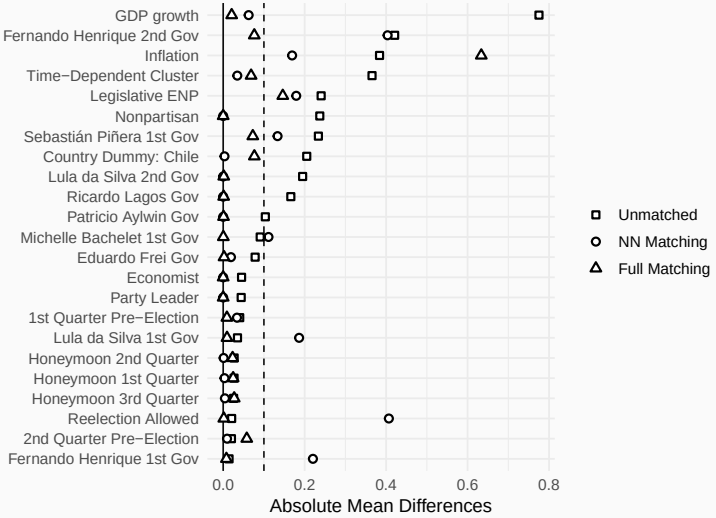


To control for the non-random selection problem in our observational data, we next employed PS and matching with a **probit regression of periods of low presidential approval** D_i with the moderating covariates $X_{j[i]}$, government and country fixed effects and the potential confounders that make up the vector C_k.

$$D_i = \varphi[\alpha \ + \sum_{j=1}^{J} \gamma_j X_{j[i]} + \zeta\, gov_i + \eta\, country_i + \sum_{k=1}^{K} \vartheta_k C_{k[i]} + \varepsilon_i] \tag{2}$$

We then classified *i-th* observations into different PS balanced groups with the **nearest neighbour algorithm** without replacement to match observations with and without exposure to low approval D_i. We also used **full matching** to obtain samples with lower average PS across pairs (Austin and Stuart, 2015; Olmos and Govindasamy, 2015).

Std and Abs Mean Differences Before and After Matching



Matching and Moderation Analysis

The assessment of covariate balance and matching suggests the choice of the sample with **full matching** where only legislative ENP and inflation fail to balance. Consequently, we integrated these variables as controls in the outcome models (Austin et al., 2007; Olmos and Govindasamy, 2015).

In addition, we **incorporated the weights obtained with the matching process** and adjusted for the *s-th* clusters of the matching (Austin and Stuart, 2015; Ho et al., 2011).

$$\lambda(t_i) = \lambda_0(t_i)\ exp\left[\beta_t w_i Z_i(t) + \beta w_i D_i + \vartheta_1\ w_i ENP_i + \vartheta_4\ w_i inflation_i + \epsilon_{i[s]}\right] \qquad (3)$$

Then, we included **interaction terms** between low approval D_i and our moderation factors $X_{j[i]}$, using $\delta_j w_i D_i \times X_{j[i]}$ in **separate models** to perform the moderation analysis.

Main Results

Effect of Low Approval on the Dismissal of Ministers

	Model I	Model II	Model III
Low Approval (< 40%)	0.668***	0.705***	0.855***
	(0.135)	(0.231)	(0.194)
Matching	Before	Before	Full
Sub. Clustering	No	No	Yes
Moderation Covariates	No	Yes	PS
Legislative ENP	No	Yes	PS/Yes
Re-Election Allowed	No	Yes	PS
GDP	No	Yes	PS
Inflation	No	Yes	PS/Yes
Quadratic Approval Pattern	No	Yes	PS
Government FE	No	Yes	PS
Country FE	No	Yes	PS
Obs. Clustering	No	Yes	PS
Log-Rank	23.333***	113.624***	22.037***
AIC	2,746.625	2,696.303	1,551.838
C-Index	0.573	0.672	0.578
VIF	1.001	1.084	3.470
Events	256	256	256
N	4,245	4,245	4,245
Log Likelihood	−1,372.313	−1,328.151	−772.919

* $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$

By exponentiating β coefficients, we obtain the hazard ratio, finding that the matching allowed a bias correction of 16.2% compared to the unmatched model and 20.6% to the baseline: $e^{\beta} = 2.351$ ($p = 0.001$ and CI 95%: 1.395 to 3.962). This implies a 135.1% increase in the risk of individual ministerial terminations during periods of low approval.

We accept the Low Approval Hypothesis.

Moderation Analysis of Exposure to Low Approval

The only profile that offers protection during periods of low approval is that of **non-partisan ministers** (before and after matching).

Model IV corrects the bias of model I by 52%: $e^{\beta} = 0.222$ ($p = 0.018$ and CI 95%: 0.064 to 0.771).

	Time-Varying Cox Regressions			Survival Outcome Models		
	Model I	Model II	Model III	Model IV	Model V	Model VI
Low Approval (< 40%)	0.877*** (0.240)	0.736*** (0.238)	0.618** (0.258)	1.381*** (0.232)	0.941*** (0.211)	0.672* (0.233)
Nonpartisan	−0.240 (0.215)			0.476 (0.261)		
Economist		−0.049 (0.207)			0.230 (0.301)	
Party Leader			0.241 (0.168)			−0.008 (0.263)
Low Approval x Nonpartisan	−0.771** (0.328)			−1.504** (0.362)		
Low Approval x Economist		−0.192 (0.336)			−0.414 (0.400)	
Low Approval x Party Leader			0.186 (0.272)			0.503 (0.339)
Matching	Before	Before	Before	Full	Full	Full
Sub. Clustering	No	No	No	Yes	Yes	Yes
Controls, confounders and FE section omitted due to space constraints						
Log-Rank	125.081***	98.428***	105.662***	48.957***	23.140***	29.086***
AIC	2,690.591	2,708.697	2,703.819	1,533.027	1,554.774	1,550.733
C-Index	0.683	0.663	0.668	0.657	0.607	0.622
VIF	1.081	1.082	1.078	3.482	3.498	3.474
Events	256	256	256	256	256	256
N	4,245	4,245	4,245	4,245	4,245	4,245
Log Likelihood	−1,326.295	−1,335.349	−1,332.910	−761.513	−772.387	−770.366

* $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$

Take Aways

Take Aways

☑ **Low Approval Hypothesis**. The risk increases by 135.1% compared to regular periods.

☑ **Nonpartisan Hypothesis**. Only one in five is removed from the cabinet in an approval crisis compared to partisan ministers (presidential strategy to limit agency loss in turbulent times).

☑ Matching allowed a **20.6% and 52% adjustment** for the main and moderation effects, respectively.

☑ **Placebo** and **robustness checks** support the main results.

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Thank you very much!

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